



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,418	03/26/2004	Franklin M. Schellenberg	MEGC122529	2647
26389	7590	12/30/2005	EXAMINER	
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC			TAT, BINH C	
1420 FIFTH AVENUE			ART UNIT	
SUITE 2800			PAPER NUMBER	
SEATTLE, WA 98101-2347			2825	

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

5

<b>Office Action Summary</b>	<b>Application No.</b> 10/811,418	<b>Applicant(s)</b> SCHELLENBERG ET AL.	
	<b>Examiner</b> Binh C. Tat	<b>Art Unit</b> 2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.  
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19, 21 and 23-30 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-19, 21 and 23-30 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/26/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to application 10/811418 filed on 03/26/04.

Claims 1-19, 21, and 23-30 remain pending in the application.

#### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1-19, 21 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-26 of Schellenberg et al. (U.S. Patent No. 6728946). Although the conflicting claims are not identical, they are not patentably distinct from each other because the removal unnecessary steps in an invention is an obvious development in the art.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United

Art Unit: 2825

States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-19, 21, and 23-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Jeffrey mayhew (U.S. Patent No. 6493866).
3. As to claims 1 (method), 14, (method), 17 (system), 18(computer), 19 (system) and 21 (produced) Jeffrey Mayhew teaches a method for optimizing data to create one or more photolithographic masks, comprising: receiving data that represents a physical layer of an integrated circuit (see fig 4 col 5 lines 56-57); creating a number of data structures that represent regions of a mask and assigning each data structure to a data layers in a layout database (see fig 4 element 102 col 5 lines 58-59); dividing the data structures that represent phase shifting areas into groups such that data structures that represent adjacent phase shifting regions are divided into different groups (see fig 4 element 102 col 5 lines 58-59 and summary and background); analyzing the data structures assigned to a data layer according to one or more design rules after the data structures have been created (see fig 4 col 5 lines 50-63); and fixing a property of each data structure in a data layer in accordance with the analysis performed (see fig 4 col 6 lines 60-67 and col 7 lines 1-12).
4. As to claims 2, Jeffrey Mayhew teaches wherein at least some of the data structures represent phase shifting areas on a mask, wherein the data structures that represent adjacent phase shifting areas on the mask are assigned to different data layers (see col 7 lines 1-5).
5. As to claims 3-5, 13, 15-16 Jeffrey Mayhew teaches wherein the property that is fixed for each data structure that represents a phase shifting area is a phase shift amount, and wherein all

Art Unit: 2825

data structures that represent phase shifting areas within a single data layer are assigned the same phase shift amount (see col 7 lines 44-65).

6. As to claim 6 Jeffrey Mayhew teaches wherein at least some of the data structures define areas on the mask that are covered by a partially transparent material and are assigned to a first data layer, and some of the data structures define areas on the mask that overlay an area of a partially transparent material with an opaque material and are assigned to a second data layer that is different from the first data layer (see col 1 lines 55-67).

7. As to claim 7 and 8 Jeffrey Mayhew teaches further comprising the step of: performing a lithographic simulation corresponding to the data structures with the properties assigned. (see col 3 lines 46-51).

8. As to claims 9, Jeffrey Mayhew teaches wherein the data structures are polygons (see col 2 lines 48-56).

9. As to claims 10, Jeffrey Mayhew teaches 10 wherein the physical layer is a gate layer (see col 4 lines 16-25).

10. As to claims 11, Jeffrey Mayhew teaches wherein the physical layer is an interconnect (see col 4 lines 16-25).

11. As to claims 12 Jeffrey Mayhew teaches a method of optimizing data that define phase shifting areas on a photolithographic mask; comprising: receiving data that describes a physical chip layer to be created on an integrated circuit (see fig 4 col 5 lines 56-57); creating a number of data layers (see fig 4 element 101 col 5 lines 57-58); creating from the data a number of data structures that represent areas on the mask that will be opaque or non-opaque to create circuit elements (see fig 4 element 102 col 5 lines 58-59); and data structures that represent phase

Art Unit: 2825

shifting regions on the masks, each data structure that represents a phase shifting region having a phase shift amount property (see col 7 lines 44-65); assigning the data structures to the data layers, such that data structures that represent adjacent phase shifting regions are assigned to different data layers (see col 7 lines 1-5); analyzing the data structures assigned to a data layer in accordance with one or more design rules after the data structures have been created (see fig 4 col 5 lines 50-63); and assigning a common phase shift amount property for the all data structures that represent phase shifting regions and are assigned to the same data layer in accordance with the analysis performed (see fig 4 col 6 lines 60-67 and col 7 lines 1-12).

12. As to claims 23, and 27 Jeffrey Mayhew teaches wherein the property that is fixed for each data structure that represents a phase-shifting area is 180 degrees (see col 7 lines 44-65 and background).

13. As to claims 24, and 28 Jeffrey Mayhew teaches wherein the property that is fixed for each data structure that represents a phase-shifting area is 270 degrees (see col 7 lines 44-65 and background).

14. As to claims 25, and 29 Jeffrey Mayhew teaches wherein the property that is fixed for each data structure that represents a phase-shifting area is 90 degrees (see col 7 lines 44-65 and background).

15. As to claims 26, and 30 Jeffrey Mayhew teaches wherein the property that is fixed for each data structure that represents a phase-shifting area is an amount by which the phase shifting region attenuates transmitted light (see col 7 lines 1-5).

***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh C. Tat whose telephone number is (703) 305-4855. The examiner can normally be reached on 7:30 - 4:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Binh Tat  
Art Unit 2825  
December 23, 2005

*Thuan Do*  
THUAN DO  
Primary Examiner  
12/24/2005